Power To The People

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Manufacturers of tool technology place a continued emphasis on batteries that promote lightweight performance and flexibility.

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It’s not uncommon to find an industrial worker with a power tool in their hands a dozen or more times per day. Whether it’s a task involving assembly or maintenance, power and speed are important – but perhaps most critical is the assurance of knowing the tool is ready to go at a moment’s notice. With reliability being top of mind for most users, power tool manufacturers place continued emphasis on improving the batteries that make a cordless tool go.

Making A Battery Better

Rechargeable battery technology has changed tremendously over the years as industry experts have sought ways to eliminate the cord or air compressor to make these types of tools easier and more effective to use in tight spaces. But the challenge for developers is in increasing the performance and run time of batteries without adding weight to the tools, something power tool manufacturers have spent countless development hours addressing.

According to Milwaukee Electric Tool Corp., its line of REDLITHIUM™ batteries provide up to 40 percent more run-time, 20 percent more power, and 50 percent more recharges than conventional lithium-ion batteries. As a result, Milwaukee® 18V and 12V cordless drills, impact drivers, saws, and specialty tools achieve more work per charge and more work for the life of the battery.

“The most important thing to our users is productivity: time equals money,” explains Paul Fry, VP of Cordless Product Marketing, Milwaukee Electric Tool Corp. “It may seem simple, but one of the user’s favorite features on all of our cordless tools is the onboard fuel gauge, which helps them monitor the charge precisely so there’s less downtime on the job.”

User convenience was also a factor in Milwaukee’s recent announcement that it had developed a multi-voltage charger capable of supporting batteries from both the M18™ and M12™ systems. This versatile unit charges batteries sequentially, reducing the user’s time to manage charge cycles. The charger communicates directly with the battery pack to monitor cell voltage, temperature, and charge status to ensure a full charge.

“With the expansion of the M18 and M12 systems, we have a growing customer

base that is using both batteries. The combination of M18 performance and M12 portability helps to make this a very valuable solution to the users who have invested in both systems," explains Fry. For example, he says, "M12 tools give the user the option to carry less weight for the majority of their applications, so users often have tools on both systems, reaching for one or the other depending on the application they are doing," Fry says. "This charger will help them be better prepared and more productive. Anything we can do to help them do more work in less time and keep downtime to a minimum is a solution that they get excited about."

Also something to get excited about — Milwaukee offers an M18 Six Pack Sequential Charger, an Energy Star rated charger that will sequentially charge up to six battery packs of any Milwaukee M18 LITHIUM-ION battery, allowing the user to walk away confident they will have enough power to complete their job. The new Six Pack Sequential Charger features a compact design, integrated hang holes for vertical mounting, and a pass through plug to conserve outlet space. The new unit will charge M18 compact batteries in 30 minutes and extended capacity (XC) batteries in 60 minutes.

Smarter Source

For Ingersoll Rand, intelligent battery management means that tool and charger systems make crucial charge and discharge decisions on a per battery cell as opposed to a per pack basis.

"The ever increasing improvements in battery cell technology has helped lead the way to a higher performance tool and battery system," says Justin Chellew, engineer III - DC precision assembly at Ingersoll Rand. "This is mainly due to the fact that cells have consistently improved their current discharge capabilities, allowing the tools to continually improve their power output with no increase to size. This enables Ingersoll Rand to manufacture a cordless tool that matches the power of an Ingersoll Rand air tool."

The intelligent battery management system provides power-level and flow-rate control from the battery to the switch to the motor. The 20V lithium-ion battery delivers a high charge capacity and low internal impedance for maximum power and extended runtime. Also, says Chellew, "Ingersoll Rand's intelligent battery management system is designed so as new and improved battery cells become available, we can implement those cell technologies into new packs, while still being forward and backwards compatible with existing tools."

Leader of the (Battery) Pack

Lithium-ion battery technology is everywhere, from cars and forklifts to mobile devices and, of course, power tools. But it wasn't so long ago that the more common battery of choice, nickel-cadmium, reigned supreme and it wasn't until the 1970s when lithium-ion became commercially available.

According to Battery University, the online educational platform of battery testing leader Cadex Electronics, the energy density of lithium-ion is typically twice that of the standard nickel-cadmium. "Lithium-ion is a low maintenance battery, an advantage that most other chemistries cannot claim," says BU. "There is no memory and no scheduled cycling is required to prolong the battery's life. In addition, the self-discharge is less than half compared to nickel-cadmium, making lithium-ion well suited for modern fuel gauge applications. Lithium-ion cells cause little harm when disposed."

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